

1 **APPENDIX**

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3 **TERT activates endogenous retroviruses to promote an**
4 **immunosuppressive tumour microenvironment**

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28 **Appendix Table S1. siRNA oligonucleotides used for RNA interference.**

Name	Sequences (5' - 3')
siTERT-1	GGUAUGCCGUGGUCCAGAATT
siTERT-2	GCGACGACGUGCUGGUUCATT
siSp1-1	CCAGCAACAUGGGAAUUAUTT
siSp1-2	GUGCAAACCAACAGAUUAUTT

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Appendix Table S2. Primers used for quantitative real-time PCR analysis.

Name	Forward (5' - 3')	Reverse (5' - 3')
human		
DDX58	AGTCTGACTGTCCTTTCTACT TGAAA	ATCCCGTTGATCTCCAGGG AA
IFIH1	GGGGCATGGAGAATAACTCA	TGCCCATGTTGCTGTTATGT
IFNB1	ACGCCGCATTGACCATCTAT	GTCTCATTCCAGCCAGTGC T
CXCL10	TGTACCTGCATCAGCATTAG	CATCTCTTCTCACCTTCTT T
IFI44	TGGTACATGTGGCTTTGCTC	CCACCGAGATGTCAGAAA GAG
OASL	CCCATCACGGTCACCATTG	GCAGAAATTTCCAGGACCA C
ISG15	GCGAACTCATCTTTGCCAGT A	CCAGCATCTTCACCGTCAG
ISG20	GGCTACACAATCTACGACAC	TCGGATTCTCTGGGAGATT T
MLT10-int*	CAAACCCAAGCCTCATGAAA	TCAGGGCTATCTGAAAGTG G
LTR69*	GAATTACTGGGTCTCCATGA C	AGGGAGTTTAAGCTATTCT TGT
LTR38-int*	CTAGCTGACCCTGTAGTAAG A	CTTTGTATCAGTGAAGCTT TGG
MER88*	GTCCTCACTCTCTCTCAGTT	CTGGGAGAGGAATAGGAG ATTA
MER92C*	GAAGTTTGTCCCTCTGAAAC TA	TAAGAGAGAGCATCCCAG AG
MLT1G1- int*	GACCTTAGGGTCAAGATCAA AC	GCTACAAACCAAGGGATA CA
GAPDH	CGGAGTCAACGGATTTGGTC GTAT	TGCTAAGCAGTTGGTGGTG CAGGA
β -actin	AGAGCTACGAGCTGCCTGAC	AGCACTGTGTTGGCGTACA G
VEGF promoter	GAGCTTCCCCTTCATTGCGG	CGGCTGCCCCAAGCCTC
β -actin promoter	GGGTCTGCGCTGTAAGAGTT	GAACTCAGCCAAGGGGAC TC

mouse		
MuERVL	ATCTCCTGGCACCTGGTATG	AGAAGAAGGCATTTGCCA GA
IAP-Pol	CTTGCCCTTAAAGGTCTAAA AGCA	GCGGTATAAGGTACAATTA AAAGATATGG
IAP-Gag	AATCTCAGAACCGCTCCATG A	TTTCTTAAAATGCCCAGGC TTT
MuLV	GGCGCCCCGTACAAGATTTC ATA	GATAACGGGCCTGCCTTCA CCTC
MusD	GATTGGTGGAAGTTTAGCTA GCAT	TAGCATTCTCATAAGCCAAT TGCAT
MMERGL N_LTR	CCCTCTGACCTAAGTTAAAT GT	CAACAGGAGACAGTGGAT TC
MMERGL N-int	CAGCAGTAGTGGATGGAAAG	GTACCGGCTGTCAGTATAG A
Gapdh	TCAACAGCAACTCCCCTCT TCCA	ACCACCCTGTTGCTGTAGC CGTAT

53 * Also used in MeDIP-qPCR and ChIP-qPCR.

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71 **Appendix Table S3. Primers used for qPCR analysis of telomere length (T/S**
72 **ratio).**

Name	Forward (5' - 3')	Reverse (5' - 3')
hTel	CGGTTTGGTTTGGGTTTGGG TTTGGGTTTGGGTTTGGGT T	GGCTTGCCTTACCCTTAC CCTTACCCTTACCCTTACC CT
h36B4	CAGCAAGTGGGAAGGTGT AATCC	CCCATCTATCATCAACGG GTACAA

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Appendix Table S4. Primers used for strand-specific reverse transcription.

Name	Primer (5' - 3')
MLT1O-int-sense	GTCTCGGGTTCTGACTGCTG
MLT1O-int-antisense	ACTAAGATTTAAGGAAGTTG
LTR69-sense	TGTCGTGTTTCGGGGGTCTCG
LTR69-antisense	TGTAGTATACTATAAGAGAC
LTR38-int-sense	AGAGGCAGAGGGAGGCTGGG
LTR38-int-antisense	GGCCATGGAGCCACCTGTG
MER88-sense	TGTGTTGTAAATGGGGGAGT
MER88-antisense	TGTATTGTAAATTTTTAAAA
MER92C-sense	TGTCAAAGACAAAAACCGAA
MER92C-antisense	TGACTCCCGTAAGACTCGCG
MLT1G1-int-sense	CATAAAATATTTTTTATGAA
MLT1G1-int-antisense	TATTCATTTTTTAAGCAAGA
β -actin-sense	CTAGAAGCATTTGCGGTGGA
β -actin-antisense	ATGGATGATGATATCGCCGC

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109 **Appendix Table S5. Datasets for RNA-seq analysis from GEO.**

Deposited Data	Identifier
Human tumours	
BRCA	GSE52194
cHL	GSE120328
COADREAD	GSE144259 GSE121842
HGSC	GSE131880
KIRC	GSE119674
LIHC	GSE136846 GSE81550
LUAD	GSE80126
OSCC	GSE125866
PAAD	GSE119794
PRAD	GSE111320
THCA	GSE64912
Human tissues	
appendix	appendix_4b: ERR315345, ERR315366 appendix_4c: ERR315454, ERR315481
bone marrow	bonemarrow_5a: ERR315425, ERR315469 bonemarrow_6a: ERR315396, ERR315486 bonemarrow_6b: ERR315404, ERR315406 bonemarrow_6c: ERR315333, ERR315395
brain	brain_a: ERR315432 brain_3b: ERR315477 brain_3c: ERR315455
fat	fat_a: ERR315332 fat_e: ERR315342, ERR315343; fat_x1: ERR315378, ERR315431
gall bladder	gallbladder_5a: ERR315349, ERR315470, ERR315474 gallbladder_5b: ERR315347, ERR315480 gallbladder_5c: ERR315360, ERR315427
heart	heart_5b: ERR315384, ERR315413 heart_6a: ERR315356, ERR315430 heart_6b: ERR315331, ERR315367

kidney	kidney_a: ERR315494 kidney_b: ERR315443 kidney_c: ERR315468 kidney_d: ERR315383
liver	liver_a: ERR315451, ERR315463 liver_c: ERR315327, ERR315394 liver_d: ERR315414
lung	lung_3e: ERR315346 lung_3f: ERR315341 lung_4a: ERR315326, ERR315424 lung_4b: ERR315439, ERR315444
lymph node	lymphnode_4a: ERR315371, ERR315373 lymphnode_4b: ERR315393, ERR315488 lymphnode_5a: ERR315440, ERR315441, ERR315493 lymphnode_5b: ERR315387, ERR315426, ERR315475 lymphnode_5c: ERR315329, ERR315390, ERR315471
ovary	ovary_6a: ERR315380, ERR315482 ovary_6b: ERR315402, ERR315458
pancreas	pancreas_6a: ERR315466, ERR315479 pancreas_6b: ERR315429, ERR315436
prostate	prostate_a: ERR315410 prostate_4a: ERR315330, ERR315359 prostate_4b: ERR315340, ERR315407 prostate_4c: ERR315354, ERR315365
small intestine	smallintestine_4a: ERR315344, ERR315419 smallintestine_4b: ERR315364, ERR315408 smallintestine_4c: ERR315381, ERR315388 smallintestine_4d: ERR315409, ERR315423
spleen	spleen_3a: ERR315338 spleen_3b: ERR315405, ERR315416 spleen_3c: ERR315473 spleen_3d: ERR315448
stomach	stomach_a: ERR315467 stomach_3a: ERR315379 stomach_3b: ERR315369, ERR315485
testis	testis_4a: ERR315350, ERR315351 testis_7a: ERR315352 testis_7b: ERR315456 testis_7c: ERR315391 testis_7d: ERR315446 testis_7e: ERR315415 testis_7f: ERR315492
thymus	Thymus RNA: SRR1957206 404 RNA-Seq: GSM2935638

	405 RNA-Seq: GSM2935639 Human whole thymus extract_1: GSM1399180 Human whole thymus extract_2: GSM1399181
thyroid	thyroid_5a: ERR315358, ERR315422 thyroid_5b: ERR315337, ERR315412 thyroid_5c: ERR315363, ERR315428 thyroid_5d: ERR315397, ERR315483, ERR315491
Mouse tissues	
several tissues	GSE74747
heart	GSE90178
kidney	GSE90179
lung	GSE90181
small intestine	GSE90191
spleen	GSE90182
stomach	GSE90192
testis	GSE90184
thymus	GSE90183

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